REMARKS

Applicant respectfully requests reconsideration of the present application in view of the foregoing amendments and in view of the reasons that follow.

Claims 1-15, 17-31, 34 and 36-41 are currently being amended. Claim 42 is being added as a new claim.

This amendment adds and changes claims in this application. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination in the application, is presented, with an appropriate defined status identifier. After amending the claims as set forth above, claims 1-15, 17-31, 33, 34 and 36-42 are now pending in this application.

Claim Objections

Claims 8-14 were found to contain allowable subject matter but were objected to for depending from rejected base claims 2 and 1. In response, Applicants have amended claim 8 to include the limitations of claims 2 and 1 as suggested by the Examiner. Accordingly, since claims 9-14 depend from claim 8, Applicants respectfully request that the objection be withdrawn and that the claims be allowed.

Claim Rejections under 35 U.S.C. § 103

Claims 1-7, 21-31, 33, 38-41 were rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication No. 2002/0155854 ("Vanghi") in view of U.S. Patent No. 6,671,512 ("Laakso"). Claims 15, 17-18, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Vanghi in view of Laakso, and further in view of U.S. Patent Publication No. 2002/0107021 ("Ishikawa"). Claims 19-20, and 36-37 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Vanghi in view of Laakso and Ishikawa, and further in view of U.S. Patent Publication No. 2001/0053670 ("Voyer"). Applicants respectfully traverse the rejections for the reasons that follow.

Applicants rely on M.P.E.P. § 2142, entitled "Legal Concept of – 2100 Patentability" which states, "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." Applicants respectfully submit that none of the cited references describe each and every element of the claims.

Independent claims 1 and 25 are directed to a method and device for controlling a wireless communications network. The network is composed of stations in communication with mobiles. The claimed method and device use an elementary load calculator to calculate for a mobile (m_u) served by a given station (v) a first elementary quantity taking into account the attenuation between each of a set of neighboring stations for the mobile ($L_{v,mu}$) and the limit of total power emitted by each neighboring station for the mobile ($P_{lim}(v)$). The elementary load calculator further calculates a second elementary quantity taking into account the communication requirement of the mobile vis-à-vis a server station (u) of the set of neighboring stations ($\xi m_u'$) and the attenuation between the server station and the mobile ($L_{u,mu}$). The elementary load calculator also calculates an elementary product ($EDPAP_{mu}$) by multiplying the first element quantity by the second element quantity, and the claimed device and method controls a link between the server station and one or more mobiles served by a given station based on a load indicator derived from the elementary product related to each of the mobiles.

Accordingly, the control method and device as claimed comprises, for a given station, the computation of an elementary product for a mobile server by the given station that represents the load potentially induced by the mobile on a server station, and the control of the link between the server station and one or more mobiles served by the given station is determined using a load indicator derived from the elementary products computed for each mobile. The load indicator is compared to a threshold. The result of the comparison is used by the claimed method and device to perform admission and congestion control.

In contrast, none of the cited references by themselves or in combination disclose, teach or suggest each and every element of the claimed invention. With respect to independent claims 1 and 25, the Office Action states that Vanghi discloses a method and

system for controlling a wireless communications network which computes "the attenuation between the mobile and each base station and the limit of the total power emitted by each base station (considered both as a first elementary quantity or initiate transmit power level set by the BSC in abstract of Vanghi) (paragraphs 10, 15, abstract); the product (an adjust power level after received a feedback command from the mobile station) of the first elementary quantity (initiate power level) by a second elementary quantity (a power control command received from the mobile station) taking into account the requirements of the mobile vis-à-vis its base station (paragraphs 16, 22-26, 28-39)." (Office Action, pp. 2 at ¶ 3 and 3 at ¶ 1.) However, Vanghi is not directed toward a control device and method for admission and congestion control. Instead, Vanghi is directed to a mobile station forward link control. In particular, the focus of Vanghi is establishing a forward link channel between a base station and a mobile station such that the initial transmit power is set to a level that achieves a desired receive signal quality at the mobile station. (*See* Vanghi, Abstract.)

Vanghi teaches a method for calculating the initial power based on the knowledge of link loss, interference and the desired signal-to-noise ratio. (*See* Fig. 2; ¶¶ [0030]-[0038]; ¶ [0024] stating, "[t]he network 100 infers expected transmit signal degradation from the path loss and interference conditions indicated by the pilot signal measurements returned to the network by the MS 102, and sets the initial forward link traffic channel transmit power to the level required such that MS 102 receives the traffic channel with a required signal quality."). Although the claimed invention also uses path loss (attenuation) and interference conditions (signal-to-interference-and-noise-ratio) for controlling a link between a mobile and a server station in various embodiments, the calculation resulting in an elementary product which is used for control is clearly different. (*See* Vanghi, Formulas (5), (6), and (7)). Vanghi does not disclose a first elementary quantity taking into account the attenuation between each of a set of neighboring stations for the mobile ($L_{v,mu}$) and the limit of total power emitted by each neighboring station for the mobile ($P_{lim}(v)$), a second elementary quantity taking into account the communication requirement of the mobile vis-à-vis a server station (u) of the set of neighboring stations ($\xi m_u'$) and the attenuation between the server station and the mobile ($L_{u,mu}$), and an elementary product ($EDPAP_{mu}$) by multiplying the first element quantity by

the second element quantity. Accordingly, the Office Action does not point out with any particularity how Vanghi discloses each and every element of independent claims 1 and 25.

With respect to claims 2 and 26-28, the Office Action states that "Vanghi further disclose [sic] the BSC computing a load to a number of BCs in the active set of MS 102 (paragraphs 13, 27, 35)." (Office Action, p. 3 at ¶ 4.) However, the calculation in Vanghi referred to by the Office Action is not a load calculation as recited in the rejected claims, but a calculation which provides a good indication of in-cell and other-cell interference. (Vanghi, ¶ [0055], stating "Such interferences rely on the use of channel measurements made by the MS 102 for BSs 104 that are candidates for serving the MS 102 on the forward link. In an exemplary embodiment, the network 100 receives pilot signal measurements made by the MS 102 for each of the candidate BSs 104. With these measurements, and with loading estimates and multipath profile estimates, the network determines in-cell and other-cell interference at MS 102, which allows it to properly set initial transmit power for the traffic channel." (Vanghi, [¶0055] (emphasis added).)

With respect to claims 3-6, and 29-31 the Office Action states that "Vanghi further discloses the division of the limit on total power emitted by the nearby stations (22, 29, 43, 45), summing all values of the base station on the mobile station with adding noise; computing the difference between the power emitted with a load threshold (paragraphs 30-46)." (Office Action, pp. 3 at ¶ 5 and 4 at ¶ 1.) Primarily, claims 4-6 do not include a limitation directed to total power of base stations. The calculation referenced by the Office Action does not disclose the calculations recited in claims 3, and 29-31. Additionally, Vanghi does not disclose summing the values of the base stations with adding noise, or computing the difference between the power emitted with a load threshold. (*See* Vanghi, ¶¶ [0030]-[0046], discussing calculations where a single base station and multiple base stations are used to support the traffic channel.) In particular, claim 3 recites calculating a value by division of the limit of total power emitted by the given neighboring station ($P_{lim}(v)$) by the attenuation between the given neighboring station (v) and the mobile ($L_{v,mu}$). Claim 29 recites a threshold calculator configured to compute a difference between the limit of total power emitted by the server station ($P_{lim}(u)$) and a common channel power of the server station ($P'(u)$), while claim 30 (from which 31 depends) recites the load elementary load calculator is

further configured to compute the intermediate quantity for each neighboring station for the mobile, and to sum the values of the intermediate quantities thus obtained, and to add an external noise (N) to the result of the summation, which gives the first elementary quantity for said mobile. As is clear by the claim limitations in 3, 29 and 30, the total power emitted by a given station is utilized as a factor in a variety of different computations to determine a load, whereas in Vanghi "the power calculation represents a joint calculation that determines the required power from each of the base stations that will be used to support the forward link traffic channel." (Vanghi, ¶ [0012])

With respect to claims 7 and 33 the Office Action states that "the power control is adjusted based on data rates to satisfy the quality of signal (paragraph 9, 14, 15, 25-29, 47-49, 52)." (Office Action, p. 4 at ¶ 2) However, claims 7 and 33 are not directed to the adjustment of anything to satisfy the quality of signal. Further, the Office Action states that "the network inherently reduces a number of mobile stations in order to have enough power to handle the traffic." (Office Action, p. 4 at ¶ 2) None of the cited paragraphs disclose the reduction of mobile stations and consequently this conclusory statement is unsupported by documentary evidence, and represents an impermissible taking of official notice. (*See* M.P.E.P. §2144.03(A)).

With respect to claims 21-23 and 38-40 the Office Action states that Vanghi "discloses computing the S/N ratio with a threshold between the mobile and the base station (paragraphs 4, 23, 30, 32-38), bit rate (paragraphs 42, 44, 46)." (Office Action, p. 4 at ¶ 3.) However, the calculation referenced by the Office Action does not disclose the calculations recited in the rejected claims. In particular, both claims 21 and 38 (from which the other rejected claims depend) recite a similar limitation of the computation of a communication requirement of the mobile vis-à-vis the server station (ξ_{mu}') from a threshold of a signal-to-interference-and-noise ratio (ξm_u') and an orthogonality factor between a set of server station channels (α). Vanghi clearly does not disclose such computations. Rather, Vanghi discloses the utilization of signal to noise ratios only to aid in the adjustment of an initial power level and does not disclose the utilization of an orthogonality factor.

As stated above, Vanghi does not disclose, teach, or suggest each and every element of independent claims 1 and 25. Claims 2-15, 17-31, 33, 34, and 36-41 depend from one of

claims 1 and 25 and should be allowed for the reasons set forth above without regard to further patentable limitations cited therein. Further, Ishikawa, Voyer, and Laakso fail to cure the deficiencies of Vanghi. Thus, Applicants respectfully request reconsideration and that the rejections be withdrawn.

New Claim 42

New claim 42 has been added to further define the invention. Support for new claim 42 can be found at least on pages 10-25 of the specification. Further, claim 42 should be allowed for the reasons set forth above.

Conclusion

Applicants believe that the present application is now in condition for allowance. Favorable reconsideration of the application as amended is respectfully requested.

The Examiner is invited to contact the undersigned by telephone if it is felt that a telephone interview would advance the prosecution of the present application.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 C.F.R. §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 19-0741. Should no proper payment be enclosed herewith, as by a check or credit card payment form being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 19-0741. If any extensions of time are needed for timely acceptance of papers submitted herewith, Applicant hereby petitions for such extension under 37 C.F.R. §1.136 and authorizes payment of any such extensions fees to Deposit Account No. 19-0741.

Respectfully submitted,

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